

STOCKPILE REPORT to the Congress



JULY - DECEMBER 1957

**EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF DEFENSE MOBILIZATION**

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OFFICE OF DEFENSE MOBILIZATION
WASHINGTON 25, D. C.

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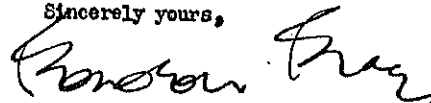
The Honorable
The President of the Senate

The Honorable
The Speaker of the House of Representatives

Sirs:

There is presented herewith the semiannual Report
to the Congress on the Stockpiling Program in accordance
with Section 4 of the Strategic and Critical Materials
Stock Piling Act, Public Law 520, 79th Congress. This report
covers the period from July 1 to December 31, 1957.

Sincerely yours,



Gordon Gray
Director

Preface

The Special Stockpile Advisory Committee comprised of non-Government individuals advised the Director of the Office of Defense Mobilization on January 28, 1958 (subsequent to the period covered by this report) of its conclusions and recommendations based upon a critical and independent study of the Government's stockpiling activities. The Committee findings are being reviewed by those Government agencies directly concerned in a reappraisal of stockpile policies and programs.

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Summary

This report covers stockpile operations from July 1 to December 31, 1957. It also reviews the process of establishing stockpile objectives to meet various emergency situations and calls attention to a new stockpile policy of limiting new procurement generally to meeting a three-year procurement priority level which assumes partial availability of overseas supplies.

Inventories of 26.3 million tons of stockpile materials having a value of \$5.7 billion at December 31, 1957 prices were stored in 218 sites on that date. Of this total, inventories valued at \$3 billion apply toward the procurement priority level.

During the six months covered by this report stockpile inventories increased by one-third million tons valued at a little more than \$94 million. New stockpile commitments (open market purchases) totalled about \$28 million.

As of December 31, 1957, procurement priority levels for 63 of the 75 stockpile materials had been attained. Minimum objectives had been reached for 47 materials and long-term objectives (applicable only to metals and minerals) for 18 materials.

Indications are that mobilization requirements for most materials will be considerably less than those estimated on the basis of the former strategic planning concepts. The new computations of mobilization requirements are expected to be received during 1958.

Surveys were made at storage locations to examine facilities and materials with emphasis on the physical condition of structures and containers. An examination is being made of the findings to provide for the institution of a long-range maintenance program.

As a result of a reconsideration of availabilities of materials, new conservation and utilization measures were instituted by the Department of Defense which require the development of suitable substitutes in major uses for one of the materials (amosite asbestos) remaining in short supply.

Stockpile Objectives and New Stockpile Procurement Policy

At the beginning of the July-December 1957 period, a new stockpile procurement policy was adopted which limited new procurement generally to meeting the procurement priority level based on a three-year emergency assuming partial availability of overseas supplies. New open market commitments for the report period were approximately \$28 million and total commitments including transfers from other Government agencies were \$42 million. Expenditures were nearly \$90 million and materials valued at more than \$4 million were transferred from other Government agencies without cost to the stockpile. At the end of December, the total value of stockpile inventories counted toward strategic stockpile objectives stood at \$5.7 billion, not including the value of the Defense Production Act, Commodity Credit Corporation, supplemental stockpile and Public Law 733 inventories. In addition, the strategic stockpile had inventories of \$100 million in excess of certain objectives.

STOCKPILE OBJECTIVES

In the achievement of an adequate materials position to meet any one of a variety of emergency situations, one major factor is the longest reasonable period of emergency for which the Nation must be prepared. During the July-December 1957 reporting period, new procurement was limited to preparedness for a three-year period except that in cases requiring urgent maintenance of the mobilization base procurement was authorized against five-year objectives pending the outcome of a comprehensive stockpile review.

As there had been differing planning levels, it is pertinent to review briefly the process by which the objectives were established. A total national requirement was computed by combining the requirements for an emergency in the categories, military, atomic energy, industrial, essential civilian, and in some cases exports.

The Nation's ability to meet those needs was determined by measuring them against supplies that could be reasonably relied upon in wartime from domestic production and from accessible foreign sources, after application of appropriate safety factors or discounts based on the advice of the Departments of Defense and State and other agencies.

If a comparison of the requirements and the factored supply revealed a shortage, the indicated emergency deficit generally became the "minimum stockpile objective." Of this amount,

the deficit that would exist over a three-year period was identified as the "procurement priority level" the predominant element in planning and procurement.

Pursuant to a directive of the President in 1954, an additional factor of safety was provided by adopting the concept of the "long-term stockpile objective" in the case of metals and minerals. These objectives generally were computed by discounting completely all overseas supplies excepting those from the very limited group of countries immediately accessible to the United States.

NEW STOCKPILE PROCUREMENT POLICY APPROVED

Prior to July 1957 highest priority was given to attainment of the procurement priority level and a lesser degree of urgency was attached to completion of the remaining portion of the minimum and long-term stockpile objectives.

Procurement went forward by direct cash purchases and by utilizing barter transactions where appropriate. Contracting that involved delivery periods extending considerably beyond one year was ordinarily done under the Defense Production Act. Additions toward the long-term stockpile objectives beyond the minimum objectives were made only under certain favorable conditions, such as when the material could be acquired at favorable prices and when such procurement aided in the maintenance of the domestic mobilization base or could be facilitated by the barter of surplus agricultural commodities abroad. In addition, a limited quantity of materials acquired under the Defense Production Act and other legislation was transferred to the stockpile where applicable toward meeting strategic stockpile objectives.

As a result of a review by the interested agencies of the Government, a major modification in procurement policy was put into effect in July 1957 whereby new procurement was limited to achieving the procurement priority level. New procurement beyond that level was authorized only in those limited instances where such procurement was essential to maintaining the domestic mobilization base.

Further, existing obligations of the Government were reviewed and where they could be cancelled with advantage to the Government, negotiations were undertaken to secure cancellation when the material to be received would be in excess of the procurement priority level. However, in those

cases where cancellation of existing obligations was not feasible, materials accruing to the Government were accepted.

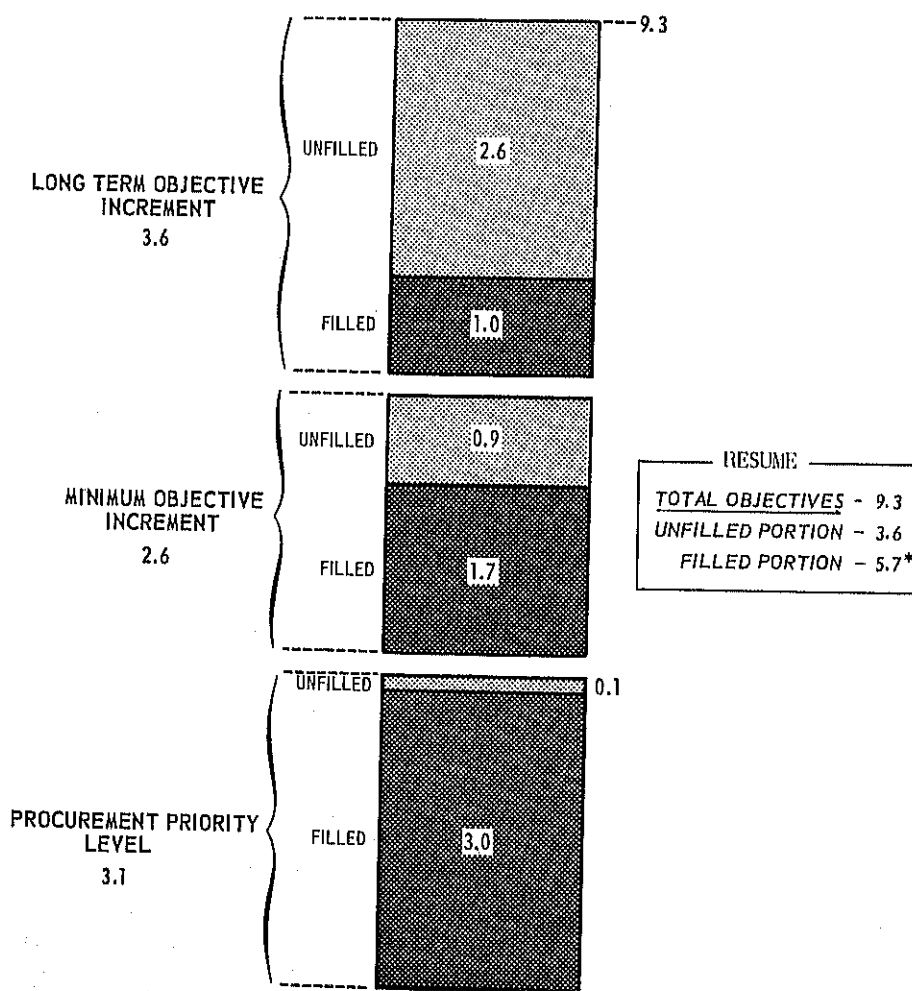
Various agencies concerned with stockpiling participated in the review of the stockpile policy that led to limitation of procurement to the procurement priority level. The agencies then further

assisted by reviewing the proposed procurement for fiscal year 1958. This included a review by the Department of Defense to assure that Office of Defense Mobilization plans for procurement toward the procurement priority level covered materials still considered important by that Department in view of changing military plans.

CHART 1

EXTENT OF FULFILLMENT OF STOCKPILE OBJECTIVES

AS OF DECEMBER 31, 1957
(BILLIONS OF DOLLARS)



SPECIFICATION GRADE MATERIALS APPLIED TOWARD THE STRATEGIC STOCKPILE

* Does not include inventory of 0.1 in excess of certain objectives nor 0.14 in materials on order.

Status of Stockpiling Program on December 31, 1957

The stockpile program is designed to reduce dependence upon uncertain and limited supplies of strategic and critical materials during the period of a national emergency by providing inventory reserves of the materials under the Stock Piling Act.

Inventories of the 75 strategic and critical materials in the stockpile totalling 26.3 million tons

were valued at \$5.7 billion at December 31, 1957 market prices. This was a decrease from the value previously reported on June 30, 1957, resulting principally from a lower market price for some of the materials. Stockpile materials on order for future deliveries amounted to \$140 million at the end of 1957. Chart 1 shows the filled and unfilled portions of the stockpile objectives.

Activities for the Period July-December 1957

DELIVERIES AND COMMITMENTS

A summary of stockpile deliveries and commitments for the report period is shown in Table A. Inventories increased by one-third million tons at a value of a little more than \$94 million during the July-December 1957 period. New stockpile pro-

curement was limited to achieving the procurement priority level and to those limited instances where such procurement was essential to support the domestic mobilization base. Deliveries from outstanding contracts, transfers and surplus acquisition were credited to the respective level or objective for which the material was acquired.

TABLE A
Deliveries and Commitments for the Strategic Stockpile July-December 1957
(MILLIONS OF DOLLARS)

Source of stockpile materials	Toward procurement priority level		Toward minimum objective		Toward long-term objective		Total	
	Deliveries	Commit- ments	Deliveries	Commit- ments	Deliveries	Commit- ments	Deliveries	Commit- ments
Open market.....	3.50	4.40	46.14	2.36	25.28	20.83	74.92	27.59
DPA inventories.....	2.45	2.49	3.21	3.22	1.40	1.39	7.06	7.10
CCC inventories.....	.36	1.81	7.21	.75	.....	.....	7.57	2.56
Foreign aid programs ¹.....	.....	.....	.96	.96	3.64	3.64	4.60	4.60
Surplus declarations ¹.....	.....	.....	.....	.....	.03	.03	.03	.03
Total.....	6.31	8.70	57.52	7.29	30.35	25.89	94.18	41.88

¹ These materials are supplied without cost to the strategic stockpile.

Source of data: General Services Administration.

PROCUREMENT OF STOCKPILE MATERIALS

During the report period, the principal materials purchased on the open market for the stockpile were amosite asbestos, metallurgical fluorspar, jewel bearings, lead, battery-grade synthetic manganese dioxide, muscovite block and film mica, and zinc. These materials were procured against the procurement priority levels with the exception of lead, battery-grade synthetic manganese dioxide and zinc. The procurement of the latter three materials aided in the maintenance of the respective domestic mobilization bases.

BARTER FOR STRATEGIC AND CRITICAL MATERIALS

The current report period has been characterized mainly by gradual progress in clarifying conditions within which barter offers will be accepted by the Commodity Credit Corporation under the revised barter program as announced on May 28, 1957. Under the program, eight barter transactions for strategic and critical materials valued at \$5.7 million were entered into by the Commodity Credit Corporation in the last half of 1957. In comparison, 50 contracts for \$142 million were negotiated in the

July-December period of 1956. Barter transactions for strategic and critical materials since the program began in 1949 total \$849 million of which \$105 million was delivered during July-December 1957. From July 1954 through December 1957 strategic and critical materials valued at \$130 million were transferred to the strategic stockpile. A total of \$273 million worth of materials had been placed in the Supplemental Stockpile. The remainder had not yet been moved out of the Commodity Credit Corporation inventory.

ACHIEVEMENT OF STOCKPILE OBJECTIVES

Inventories for 63 of the 75 strategic and critical materials for which there are official stockpile objectives (Group I Materials) reached or exceeded the respective procurement priority levels by December 1957. Minimum objectives for 47 of the materials were reached. A total of 56 materials are metals or minerals which also have long-term objectives. Eighteen of these objectives were reached.

The current list of strategic and critical materials with an indication of those whose inventories substantially equaled or exceeded the respective procurement priority levels and the minimum and long-term objectives is set forth in Table B. The list is subject to change as inventories increase and as stockpile programs are revised. For example, titanium sponge was removed from Group I materials (those having objectives) in September 1957 in view of revised military program requirements. It was placed in Group II which contains materials acquired for defense purposes but currently having no objectives. None of the materials in this group are under procurement. (See Table C.)

TABLE B

Current List of Group I Materials in the Strategic Stockpile and Indication of the Materials Whose Inventories Equal or Exceed Objectives Designated as of December 31, 1957

[These materials have been or may be acquired through purchase pursuant to Section 3(a), and by transfer of Government-owned surpluses pursuant to Section 6(a) of Public Law 520, 79th Congress.]

Material	Procurement priority level	Minimum stockpile objective	Long-term stockpile objective
1. Abrasive, Crude Aluminum Oxide.....	X	X	X
2. Agar.....	X	X	NA
3. Aluminum.....	X	X	
4. Antimony.....	X		
5. Asbestos, Amosite.....			
6. Asbestos, Chrysotile.....	X	X	X
7. Asbestos, Crocidolite.....	X	X	X

Material	Procurement priority level	Minimum stockpile objective	Long-term stockpile objective
8. Bauxite, Metal Grade, Jamaica Type.....			
9. Bauxite, Metal Grade, Surinam Type.....	X	X	
10. Bauxite, Refractory Grade...	X	X	X
11. Beryl.....	X	X	
12. Bismuth.....	X	X	
13. Cadmium.....	X	X	
14. Castor Oil.....	X	X	NA
15. Celestite.....	X	X	X
16. Chromite, Chemical Grade....	X		
17. Chromite, Metallurgical Grade.....	X	X	
18. Chromite, Refractory Grade..	X		
19. Cobalt.....	X		
20. Coconut Oil.....	X	X	NA
21. Columbite.....	X	X	X
22. Copper.....	X		
23. Cordage Fibers, Abaca.....	X	X	NA
24. Cordage Fibers, Sisal.....	X	X	NA
25. Diamond Dies, Small.....			
26. Diamonds, Industrial, Hort..	X		
27. Diamonds, Industrial, Stones	X	X	
28. Feathers and Down, Waterfowl.....	X	X	NA
29. Fluorspar, Acid Grade.....	X	X	
30. Fluorspar, Metallurgical Grade.....			
31. Graphite, Ceylon-Crystalline and Amorphous.....	X	X	
32. Graphite, Madagascar-Crystalline Flake and Fines	X	X	X
33. Graphite, Other Than Ceylon and Madagascar-Crystalline	X	X	X
34. Hyoscine.....	X	X	NA
35. Iodine.....	X		
36. Jewel Bearings.....			
37. Lead.....	X	X	
38. Magnesium.....			
39. Manganese, Battery Grade, Natural Ore.....	X	X	X
40. Manganese, Battery Grade, Synthetic Dioxide.....	X		
41. Manganese, Chemical Grade, Type A Ore.....	X		
42. Manganese, Chemical Grade, Type B Ore.....			
43. Manganese Ore, Metallurgical Grade.....	X	X	
44. Mercury.....	X	X	X
45. Mica, Muscovite Block, Stained A/B and Better....			

Material	Procurement priority level	Minimum stock- pile objec- tive	Long- term stock- pile objec- tive
46. Mica, Muscovite Film, First and Second Qualities.....			
47. Mica, Muscovite Splittings..	X	X	
48. Mica, Phlogopite Splittings	X		
49. Molybdenum.....	X		
50. Nickel.....	X		
51. Opium.....	X		NA
52. Palm Oil.....	X	X	NA
53. Platinum Group Metals, Iridium.....	X	X	X
54. Platinum Group Metals, Palladium.....			
55. Platinum Group Metals, Platinum.....	X	X	X
56. Pyrethrum.....	X	X	NA
57. Quartz Crystals.....	X	X	X
58. Quinidine.....	X	X	NA
59. Rare Earths.....	X	X	X
60. Rubber, Crude Natural.....	X	X	NA
61. Selenium.....			
62. Shellac.....	X		NA
63. Silicon Carbide, Crude.....			
64. Silk, Raw.....	X	X	NA
65. Silk Waste and Noils.....	X	X	NA
66. Sperm Oil.....	X	X	NA
67. Talc, Steatite, Block.....	X		
68. Tantalite.....	X	X	X
69. Tin.....	X	X	X
70. Tungsten.....	X	X	X
71. Vanadium.....	X	X	X
72. Vegetable Tannin Extract, Chestnut.....	X	X	NA
73. Vegetable Tannin Extract, Quebracho.....	X	X	NA
74. Vegetable Tannin Extract, Wattle.....	X	X	NA
75. Zinc.....	X	X	

NA--Not applicable. The long-term stockpile objective applies only to metals and minerals.

TABLE C

Current List of Group II Materials in the Strategic Stockpile as of December 31, 1957

The following list constitutes Group II of the materials in the strategic stockpile. These materials have been acquired principally through transfer of Government-owned surpluses pursuant to Section 6(a) of Public Law 520, 79th Congress. None is under procurement nor have formal objectives been established for them.

- | | |
|---|---------------------------|
| 1. Bauxite, Abrasive | 6. Mica, Phlogopite Block |
| 2. Corundum | 7. Rutile |
| 3. Cryolite, Natural | 8. Sapphire and Ruby |
| 4. Diamond Dies, Other Than Small | 9. Talc, Steatite, Ground |
| 5. Mica, Muscovite Block, Stained B and Lower | 10. Titanium Sponge |
| | 11. Wool |

STOCKPILE OBJECTIVE REVIEWS

New mobilization requirements are being computed by the Department of Defense in accordance with the most recent strategic guidance. Indications are that mobilization requirements for most materials are considerably less than those based on former strategic planning concepts. The new computations of mobilization requirements are expected to be made available to ODM during 1958. During the July-December report period, stockpile reviews have proceeded for the materials that are not substantially affected by military requirements. However, preliminary data on military requirements have been used in some cases where needed for programming purposes.

STORAGE FACILITIES

There was a reduction of five storage locations for strategic and critical materials during the report period. As of December 31, 1957, materials were stored at 218 locations as follows:

Type of facility	As of Dec. 31, 1957	Change in six months
Military depots	64	-1
GSA warehouses.....	16	+1
Other Government-owned sites	6	-1
Industrial plant sites.....	37	+1
Leased commercial sites....	10	0
Commercial warehouses.....	83	-4
Commercial tank facilities..	1	0
Port storage sites	1	-1
Total.....	218	-5

Surveys were made at 56 storage locations during the period to examine facilities and materials with particular emphasis on the physical condition of containers and warehouse structures. An evaluation is being made of the findings to provide for the institution of a long-range program of rehabilitation, repackaging and other corrective measures which may be required.

TONNAGE OF MATERIALS HANDLED

During July-December more than 1.5 million tons of strategic and critical materials were received and stored. Of this tonnage, about 900,000 tons were added to Defense Production Act inventories, 340,000 tons to the stockpile, 300,000

tons to Commodity Credit Corporation inventories, and about 30,000 tons to Public Law 733 inventories. Transfers from Commodity Credit Corporation inventories to the Supplemental Stockpile amounted to 498,000 tons.

INSPECTIONS

During July-December 1957 strategic and critical materials with a value of approximately \$417,000,000 acquired for the stockpile or under other materials programs were inspected. A total of 3,600 inspections of stockpiled materials for qualitative maintenance purposes were completed and 3,100 other inspection actions, including expediting and sales inspections, were taken. Inspections of new material for the six months period included 15,730 inspections of materials for the strategic stockpile, 7,190 inspections of Defense Production Act materials, and 4,800 inspections of Commodity Credit Corporation materials, or a total of 27,720 inspections.

PHYSICAL INVENTORY

At the end of December 1957, inventory-taking had been completed at six General Service Administration operated warehouses and was well under way at nine others. Inventory-taking had also been completed at 59 commercial warehouses and was in progress at seven others. The target date for completion of the physical inventory at General Services Administration and commercial warehouses continues to be September 30, 1958.

A suggested agreement between the Department of Defense and the General Services Administration, with attendant required procedures, for inventory-taking at military depots has been reviewed by the respective services, but final arrangements have not yet been made.

SPECIFICATIONS AND INSTRUCTIONS FOR MATERIALS

Three series of stockpile specifications and instructions as follows are used: (1) Purchase Specifications are issued to control the quality, form and method of packaging and marking the various materials acquired for the stockpile, (2) Special Instructions are issued to Government personnel to give guidance on the various problems in connection with the stockpiling of each individual material, and (3) Container Specifications are issued to prevent or minimize losses or contamination of materials during long periods of storage.

The Office of Defense Mobilization issued one new purchase specification and 16 revisions for the guidance of the General Services Administration in acquiring materials for the stockpile during the report period. (See Appendix B.)

A new purchase specification for diamond dies was first issued on October 11, 1957. This specification covers unmounted diamond dies satisfactory for use in the production of hot drawn and

cold drawn wire 0.0015 of an inch and smaller in diameter.

During this period a number of purchase specifications have been revised in order to specify higher grades or types of material. Problems relating to long-term storage have received special consideration in connection with the packaging and marking sections of all revisions in order to minimize losses due to weather conditions and contamination. Changes in industrial technology, new products, substitution of new or different materials for current uses, and changes in the source of supply of many materials make it necessary continually to review and revise purchase specifications. Interested Government agencies, technical associations, and the producing and consuming industries are consulted before any chemical or physical requirements are established or revised. The Office of Defense Mobilization generally coordinates the specifications with industry through the Business and Defense Services Administration, Department of Commerce.

Nine new and five revisions of special instructions on stockpile materials were issued during July-December, as listed in Appendix B. Special instructions are issued to the General Services Administration to provide guidance on various problems that arise and to assure uniformity of procedure. They cover a description of the individual material to be purchased and guidance on accepting material from other Government agencies and on sampling, inspection, testing, refining, processing, beneficiation, crediting to stockpile objectives, packaging, marking, identification, shipping, storage, segregation, rotation and precautions, if necessary, to protect personnel or to avoid losses of material.

The first six in a new series known as "container specifications" were issued during the period covered by this Stockpile Report. An extensive investigation revealed that there was no known specification for galvanized steel drums that would be satisfactory for outdoor storage over a long period of time. This led to the development of a stockpile specification which was coordinated with interested Government agencies and the Steel Shipping Container Institute. Purchase specifications now include provision for this drum when necessary and the packaging section of the special instructions designates its use when needed by the General Services Administration to repackage materials already in the stockpile.

Experience has taught that some of the ores and concentrates stored in large piles in the open are subject to possible losses from wind, rain, and other weather conditions and may become contaminated by dirt, dust, and atmospheric industrial wastes. Specifications were issued so that a number of piles of these materials could be grout covered to reduce losses and contamination.

Developments in Strategic and Critical Materials

AGAR

The stockpile inventory of agar was acquired through surplus transfers of World War II supplies. Recent laboratory tests have proven that this material is unsuited for present day bacteriological standards. In view of this, the extent of disposal and replacement of agar in the stockpile is dependent upon new revised requirements for defense purposes.

ALUMINUM

From July through December, 223,627 short tons of primary aluminum were accepted by the Government under "put" right contracts negotiated under the aluminum expansion program. These contracts, which run for five years and are approaching their expiration, were revised downward during this half year to reduce the permissible "puts" by the amount of primary metal imported from Canada by the respective primary producers.

ASBESTOS

Purchases of amosite asbestos for the stockpile continue to the limited extent the material is available from the single supplier. The Department of Defense has included amosite in its directive on conservation and utilization, which requires the military departments to develop suitable substitutes in all major uses of amosite.

Purchases of Arizona chrysotile asbestos under Public Law 733 were resumed in July 1957 when funds were made available in the appropriation bill of the Department of the Interior. The construction by the Government of a custom mill to process Arizona asbestos ore is being urged by several mine operators.

BAUXITE

Large quantities of Jamaican metallurgical-grade bauxite were transferred to the strategic stockpile from Defense Production Act inventories. Laboratory investigations of bauxite ore from the Quapaw Deposit, Saline County, Arkansas, published in November by the Bureau of Mines, outlined a method of treating subchemical-grade bauxite by removing a portion of the iron minerals so that chemical-grade ore could be produced. Reserves of usable chemical-grade ore in the United States were thus considerably increased. A commercial plant is being built to utilize the Bureau's process.

BRISTLES, HOG

The fourth and fifth offerings under the Government program for the disposal of the Chinese hog

bristles in the stockpile were made during the period. None of the bids under the fourth offering were accepted, but approximately 58,600 pounds were sold to bidders on the fifth offering. Plans for further disposal through the auction method are being developed, with the first sale to be held early in 1958. Additional sales, either by auction or sealed bid, are planned at 90-day intervals.

BERYL

The Government program to purchase domestically produced beryl extends to June 30, 1962, or when deliveries under this program total 4,500 short tons, whichever occurs first. By the end of December, 1,695 tons had been purchased under this program.

CASTOR BEANS

Castor bean breeding and production research was continued in California, Arizona, Texas, Oklahoma and Mississippi to develop improved varieties for each area. New dwarf castor beans show promise of reducing harvesting difficulties and are being tested in all areas of production. The new varieties will probably fill a need for growers of castor beans in Mississippi and adjacent states, where varieties easy to harvest and resistant to diseases and wind damage are needed. Basic research on castor bean diseases was initiated in Florida in 1957 and research on inheritance of important agronomic characters was continued in California, Oklahoma and Texas.

The Commodity Credit Corporation maintains a castor seed stockpile under the Defense Production Act for use in domestic production in the event of an emergency as well as a limited quantity of hulling and harvesting machinery.

COBALT

Free-world production of cobalt reversed a seven-year uptrend in 1957 but remained in excess of requirements. Consumption in the United States decreased from the level of 1956 and the first half of 1957. Mines in Northern Rhodesia began production of cobalt matte which was refined to metal on a toll basis. An initial delivery of cobalt in repayment of advances made by Economic Cooperation Administration to a producer in Northern Rhodesia was made during the period. An electrolytic refining unit, which will eliminate the hydrogen reduction and arc furnacing steps formerly used and produce a higher grade product at lower cost, was added to refinery operations in Utah.

COCONUT OIL

During the six months period, more than 3,150,000 pounds of coconut oil were rotated.

COLUMBITE-TANTALITE

The increasing demand for columbium and tantalum resulted in the development of a new series of alloys, expanded production facilities, new refining techniques, and improved products. New facilities were put into production at Muskogee, Oklahoma; Albany, Oregon; and Niagara Falls. New features incorporated in the plants include solvent extraction separation techniques and consumable electrode arc melting. New facilities are available for purification of columbium metal by electron bombardment melting.

COPPER

Delivery of copper in replacement of material diverted to industry in 1954, 1955 and 1956 was finally completed during this period. When the market price of copper fell below the guaranteed Defense Production Act floor prices during the period, two companies "put" copper to the Government. By the end of the year more than 35,000 tons had been tendered. Deliveries in repayment of advances by the Economic Cooperation Administration were made by three contractors, the source of the material being Tanganyika, Northern and Southern Rhodesia.

CORDAGE FIBERS

Approximately 41,200,000 pounds of cordage fibers were rotated during the July-December period. Of the total, 16,300,000 pounds were abaca and 24,900,000 pounds were sisal.

COTTON

On July 31, 1957, 50,000 bales of extra long staple cotton were transferred to the Department of Agriculture for disposal in accordance with Public Law 96, 85th Congress. Of this quantity, approximately 7,000 bales were sold during the July-December report period.

DIAMOND DIES--SMALL

Very small sizes of wire produced by diamond dies are used in ever increasing amounts in the production of miniature electronic devices. A substantial portion of the finished dies required for drawing wire in these small sizes is imported and all the uncut diamond die stones are imported. During the report period the General Services Administration was authorized to make a small initial purchase of diamond dies which will test the market, disclose the potential sources of supply, and bring into the stockpile some usable dies of the most critical small sizes. Bids from suppliers were to close in January 1958. The present stockpile inventory of dies, acquired by surplus transfers after

World War II, will be tested along with the newly purchased dies, using the recently promulgated specifications.

FEATHERS AND DOWN

Research was continued on the possibility of using treated chicken feathers as a substitute for waterfowl feathers and down.

FLUORSPAR

The General Services Administration continued to purchase metallurgical-grade fluorspar from domestic producers only. The purchases of domestic acid-grade fluorspar continued under provisions of Public Law 733.

JEWEL BEARINGS

Acquisition of jewel bearings during this July-December period was confined to instrument bearings produced at the Department of the Army Turtle Mountain Ordnance Facility, Rolla, North Dakota, pending completion of new computations of mobilization requirements by the military departments.

LEAD AND ZINC

Monthly stockpile purchases of domestic metal were made throughout the period. Deliveries of both lead and zinc in repayment of International Cooperation Administration advances were made under several contracts.

MAGNESIUM

The Bureau of Mines is doing research on improved magnesium base alloys designed to increase their usefulness. The General Services Administration in conjunction with industry developed methods of outdoor storage of magnesium to reduce deterioration losses and continues its surveillance of present storage sites for this purpose. Stockpile purchase of magnesium has been deferred until new computations of mobilization requirements are available.

MANGANESE

A large tonnage of metallurgical-grade manganese ore averaging approximately 50 percent manganese content was accepted into the stockpile as a result of deliveries from the Amapa operation in Brazil under a Defense Production Act contract. In view of the favorable supply position of metallurgical manganese and the favorable results of research on low-grade domestic ores, further research under the Defense Production Act program has been greatly curtailed. The General Services Administration has been requested to defer procurement of type B chemical-grade manganese pending completion of a survey of the inventory of manganese battery-grade natural ore to determine the extent to which it can meet the revised specifications for type B chemical-grade ore.

MERCURY

The Domestic and Mexican Mercury Purchase Program regulations were revised effective November 8, 1957, and the adjusted programs were extended through December 31, 1958. As a result of decreases in the market price of mercury, producers delivered considerable quantities during the latter part of the six-month period.

MICA—MUSCOVITE BLOCK AND FILM

Despite some improvement in the procurement situation, muscovite block and film mica continues to be needed for the stockpile. A number of five-year contracts have been awarded and others are being negotiated by the General Services Administration under the Defense Production Act Foreign Mica Expansion Program. Under the Domestic Mica Purchase Program, a small but important quantity continues to be acquired for the stockpile. The General Services Administration is actively pursuing the synthetic mica research program which it is hoped will lead to the development of a satisfactory substitute for block and film mica in strategic applications.

MOLYBDENUM

In view of the favorable stockpile position for molybdenum under the new concept of requirements, a Defense Production Act contract made in Mid-1952 for the purchase of molybdenum was cancelled by mutual agreement during the period of this report. The Government received a cash settlement from the contractor.

NICKEL

As recommended by the Department of Commerce, the Office of Defense Mobilization authorized the diversion to industry of all nickel scheduled for delivery to the Government in 1957. Substantially all nickel released through the third quarter of 1957 was sold to industry. However, as a result of a sharply lowered demand for nickel in the fourth quarter, almost all the premium price nickel from private plants and substantial quantities of the nickel oxide sinter and nickel metal from the Government-owned Nicaro plant remained unsold. Following a recommendation by the Department of Commerce, the Office of Defense Mobilization instructed the General Services Administration to retain the unsold nickel in the Defense Production Act inventory for possible resale to industry in the event of a renewed shortage.

OPIUM

Negotiations are currently being conducted to set aside for the Federal Civil Defense Administration approximately 2,500,000 doses of narcotic derivatives taken into the stockpile through surplus declarations from Government agencies. Recent

germination tests conducted by the Department of Agriculture on the stockpile of opium poppy seed indicated a sharp drop in viability. If stockpiling of seed is to be continued, plantings probably will need to be made in 1959 to obtain fresh seed for the stockpile.

RUBBER

During the July-December period a total of 23,324 long-tons of rubber was rotated. Of this quantity, 15,541 tons were for upgrading purposes and 7,783 tons were straight rotations.

SELENIUM

Because of a large shift from selenium to silicon and germanium in the rectifier industry and substitution of mercury and cadmium for selenium in the pigment industry, stockpile acquisitions of selenium are being held to small amounts at least until a new review of the supply-demand situation can be completed.

SILICON CARBIDE--CRUDE

Acquisition of silicon carbide through long-term barter contracts will bring the inventory to a satisfactory level within the next two years.

RESEARCH ON TANNIN MATERIALS

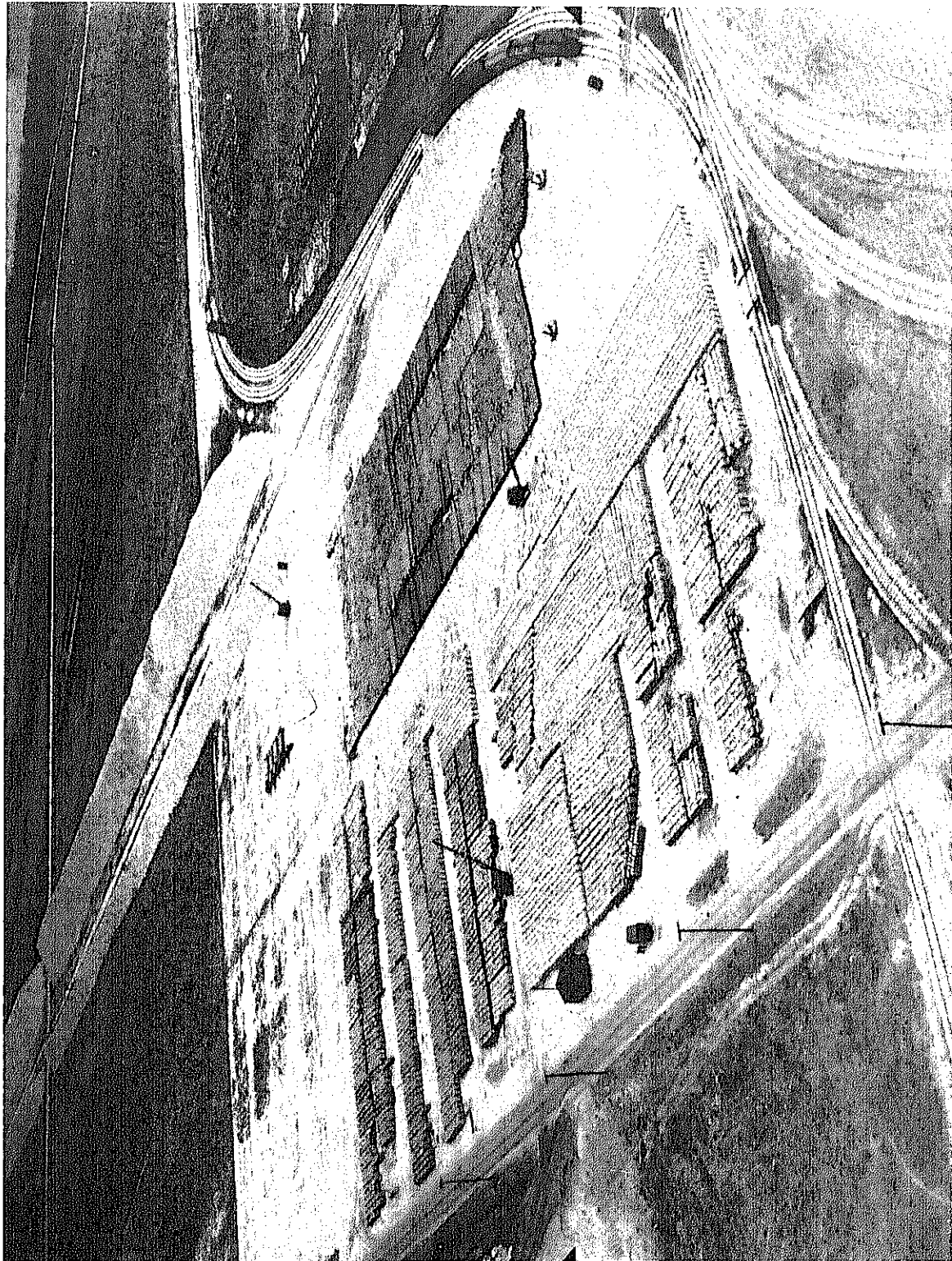
Field experiments on canaigre as a source of tannin, chiefly concerned with developing more economical growing practices and improving the quality of the roots for processing, were continued in cooperation with the Arizona Agricultural Experiment Station. Experimental plantings of canaigre have been made also on National Forest Land in southern Arizona for testing the possibility of maintaining selected breeding material under natural conditions.

TITANIUM

The July-December 1957 report period was marked by continued shrinking of the consumption of titanium sponge to produce mill products. Production of sponge, however, did not shrink proportionately. The reduced requirements for mill products resulted from the decrease in orders for military planes and the stretch-out in deliveries of planes on order. A contract was executed with the Bureau of Mines calling for research to develop the production of ultra high purity titanium metal by the electro-chemical technique, and for the development of feed materials. Titanium sponge was removed from the Group I list of strategic and critical materials and placed in Group II as a result of the elimination of the stockpile objective for this material. The supply of sponge is being held in the Defense Production Act inventory so that it can be made available promptly for any upsurge in sponge demands.



STORAGE OF STRATEGIC OILS IN THE NATIONAL STOCKPILE



STORAGE AREA OF STRATEGIC METAL AND ORE IN THE NATIONAL STOCKPILE

APPENDIX A

FINANCIAL SUMMARY OF STOCKPILE OPERATIONS AS OF DECEMBER 31, 1957

TABLE 1 STATUS OF OBLIGATIONAL OPERATIONS

AS OF DECEMBER 31, 1957

AUTHORITY	APPROPRIATED FUNDS ^{a/}	AUTHORIZATIONS FOR		TOTAL OBLIGATIONAL AUTHORITY (CUMULATIVE) ^{d/}
		MAKING ADVANCE CONTRACTS ^{b/}	LIQUIDATING OUTSTANDING ADVANCE CONTRACTS ^{c/}	
Under PL 117 - 76th Congress	\$ 10,000,000	\$	\$	\$ 10,000,000
PL 361 - 76th Congress, August 9, 1939	12,500,000			22,500,000
PL 442 - 76th Congress, March 25, 1940	47,500,000			70,000,000 ^{e/}
PL 667 - 76th Congress, June 26, 1940				
Under PL 520 - 79th Congress	100,000,000	-	-	100,000,000
PL 663 - 79th Congress, August 8, 1946	100,000,000	75,000,000	-	275,000,000
PL 271 - 80th Congress, July 30, 1947	225,000,000	300,000,000	-	800,000,000
PL 785 - 80th Congress, June 25, 1948	75,000,000	-	75,000,000	800,000,000
PL 785 - 80th Congress, June 25, 1948	40,000,000	270,000,000	-	1,110,000,000
PL 119 - 81st Congress, June 23, 1949	275,000,000	250,000,000	-	1,635,000,000
PL 150 - 81st Congress, June 30, 1949	250,000,000	-	250,000,000	1,635,000,000
PL 150 - 81st Congress, June 30, 1949	-	-	100,000,000 ^{f/}	1,535,000,000
PL 434 - 81st Congress, October 29, 1949	365,000,000	-	240,000,000	1,660,000,000
PL 759 - 81st Congress, September 6, 1950	240,000,000	125,000,000	-	2,025,000,000
PL 759 - 81st Congress, September 6, 1950	573,232,449 ^{g/}	-	-	2,598,232,449
PL 843 - 81st Congress, September 27, 1950	1,894,911,000	-	-	4,433,143,449
PL 911 - 81st Congress, January 6, 1951	590,216,500	-	-	5,023,359,949
PL 253 - 82nd Congress, November 1, 1951	200,000,000	-	200,000,000	5,023,359,949
PL 253 - 82nd Congress, November 1, 1951	203,979,000	-	70,000,000	5,157,338,949
PL 455 - 82nd Congress, July 25, 1952	-	-	30,000,000	5,127,338,949
PL 176 - 83rd Congress, July 31, 1953	-	-	27,600,000	5,099,738,949
PL 428 - 83rd Congress, June 24, 1954	379,952,000 ^{h/}	-	-	5,479,690,949
PL 663 - 83rd Congress, August 26, 1954	321,721,000 ^{i/}	-	-	5,801,411,949
PL 112 - 84th Congress, June 30, 1955	27,400,000	-	-	5,801,411,949
PL 112 - 84th Congress, June 30, 1955	5,801,411,949 ^{j/}	1,020,000,000	27,400,000	5,801,411,949
Total PL 520	5,871,411,949 ^{j/}	1,020,000,000	1,020,000,000	5,871,411,949
TOTAL PL 117 AND PL 520	5,871,411,949 ^{j/}	1,020,000,000	1,020,000,000	5,871,411,949

- ^{a/} Congressional appropriations of funds for stockpiling purposes.
^{b/} Congressional appropriations of contracting authority for stockpiling purposes in advance of appropriation of funds.
^{c/} Congressional authorization to liquidate outstanding obligations incurred under previously granted advance contract authority.
^{d/} Cumulative total of appropriated funds and advance contract authorization, less authorization to liquidate outstanding advance contracts.
^{e/} Excludes \$8,845,792 received from sale of stockpile materials for wartime consumption. Receipts were returned to Treasury, February 1948.
^{f/} Cancellation of previously authorized authority to make contracts.
^{g/} Excludes \$25,404,921 transferred to operating expenses for rehabilitation of Government-owned material producing plants.
^{h/} Excludes \$48,000 transferred to Transportation and Public Utilities Service, GSA.
^{i/} Excludes \$430,000 transferred to Transportation and Public Utilities Service, GSA and \$199,349,000 transferred to General Fund Receipts on June 27, 1956 - PL 623 - 84th Congress.
^{j/} Excludes receipts from rotational sales.

Source: General Services Administration

Table 2 TOTAL OBLIGATIONS AND EXPENDITURES OF STOCKPILING FUNDS

CUMULATIVE AND BY FISCAL PERIOD, THROUGH DECEMBER 31, 1957

Fiscal Period	Obligations Incurred ^{A/}		Expenditures ^{B/}	
	Net Change By Fiscal Period	Cumulative As of End of Period	By Fiscal Period	Cumulative As of End of Period
Prior to Fiscal Year 1948	\$ 123,871,685	\$ 123,871,685	\$ 66,330,731	\$ 66,330,731
Fiscal Year 1948	252,901,411	376,773,096	82,907,575	149,238,306
Fiscal Year 1949	459,766,881	836,539,977	304,486,177	453,724,483
Fiscal Year 1950	680,427,821	1,516,967,798	440,834,970	894,559,453
Fiscal Year 1951	2,075,317,099	3,592,284,897	655,537,199	1,550,096,652
Fiscal Year 1952	948,117,547	4,540,402,444	844,683,459	2,394,780,111
Fiscal Year 1953	252,375,163	4,792,777,607	906,158,850	3,300,938,961
Fiscal Year 1954	116,586,681	4,909,364,288	644,760,321	3,945,699,282
Fiscal Year 1955	321,799,833	5,231,164,121	801,310,094	4,747,009,376
Fiscal Year 1956 ^{C/}	251,692,667	5,482,856,788	382,011,786 ^{C/}	5,129,021,162 ^{C/}
Fiscal Year 1957	190,000,109	5,672,856,897	354,576,558	5,483,597,720
Fiscal Year 1958 - First Half	48,777,174	5,721,634,071	87,038,370	5,570,636,090

^{A/} Figures are the sum of obligations incurred under PL 520, 79th Congress and PL 117, 76th Congress.^{B/} Final obligations under PL 117, 76th Congress were incurred in Fiscal Year 1949.^{B/} Figures are the sum of expenditures under PL 520, 79th Congress and PL 117, 76th Congress.^{C/} Final expenditures under PL 117, 76th Congress were made in Fiscal Year 1951.^{C/} 1956 and subsequent fiscal periods and cumulative expenditures are reported on an accrual basis.

Source: General Services Administration

Table 3 EXPENDITURES OF STOCKPILING FUNDS, BY TYPE

CUMULATIVE AND FOR FISCAL YEAR 1958

TYPE OF EXPENDITURE	CUMULATIVE THROUGH JUNE 30, 1957 ^{a/}	SIX MONTHS ENDED DECEMBER 31, 1957	CUMULATIVE THROUGH DECEMBER 31, 1957 ^{a/}
Expenditures			
Gross Total	\$5,949,136,757	\$109,067,101	\$6,058,203,858
Less: Adjustments for Receipts from Rotation Sales and Reimbursements	465,539,037	22,028,731	487,567,768
Net Total	5,483,597,720	87,038,370	5,570,636,090
Material Acquisition Costs, Total	5,230,754,634	74,264,030	5,305,018,664
Stockpile Maintenance Costs, Total	219,743,426	11,236,762	230,980,188
Facility Construction	43,928,014	0	43,928,014
Storage and Handling Costs	133,687,260	7,562,184	141,249,444
Net Rotation Costs	42,128,152	3,674,578	45,802,730
Administrative Costs	33,099,660	1,537,578	34,637,238

^{a/} Cumulative figures are the total of expenditures under PL 117, 76th Congress and PL 520, 79th Congress. Expenditures under PL 117, 76th Congress totaled \$70,000,000, of which \$55,625,237 was for materials acquisition costs and \$14,374,763 was for other costs. Final expenditures under PL 117 were made in FY 1951.

Source: General Services Administration

Appendix B

CHANGES IN STOCKPILE SPECIFICATIONS AND INSTRUCTIONS JULY-DECEMBER 1957

<i>Number</i>	<i>Item</i>	<i>New or revised</i>		
Purchase Specifications				
P-13-R1	Cobalt	Revised		
P-14-R	Coconut Oil	Revised		
P-15-R1	Columbite	Revised		
P-67	Diamond Dies	New	O	
P-11a-R	Ferrochromium-Low Carbon	Revised	Dec	
P-11c-R2	Ferrochromium-Silicon	Revised	Dec	
P-57a-R1	Ferrotungsten	Revised	Dec	
P-24-R1	Iodine	Revised	Dec	
P-71-R1	Manganese	Revised	October	
P-29-R2	Manganese Dioxide-Battery Grade	Revised	September	18
P-81-R	Manganese Ore-Chemical Grade	Revised	October	28
P-74-R1	Molybdenum	Revised	September	6
P-36-R1	Nickel	Revised	December	27
P-38-R	Palm Oil	Revised	August	29
P-35-R	Rare Earths	Revised	August	1
P-54-R1	Tantalum Minerals	Revised	August	1
P-58-R	Vanadium	Revised	December	11
Special Instructions				
SI-13-R	Cobalt	Revised	October	28
SI-14	Coconut Oil	New	October	29
SI-15	Columbite	New	August	1
SI-11a-b-R	Ferrochromium	Revised	December	26
SI-11c	Ferrochromium-Silicon	New	December	23
SI-57a-R	Ferrotungsten	Revised	December	2
SI-71	Magnesium	New	October	18
SI-29-R	Manganese Dioxide-Battery Grade	Revised	September	18
SI-74	Molybdenum	New	September	6
SI-36-R	Nickel	Revised	December	27
SI-38	Palm Oil	New	October	29
SI-35	Rare Earths	New	August	1
SI-54	Tantalum Minerals	New	August	1
SI-58	Vanadium	New	December	11
Container Specifications				
C-1	Drums: Steel, Hot-Dip, Galvanized	New	July	1
C-2	Grout Covering for Chromite Concentrates	New	July	25
C-3	Grout Covering for Manganese Concentrates	New	July	25
C-4	Grout Covering for Ferrochromium-Low Carbon	New	July	25
C-5	Grout Covering for Silicon Carbide	New	July	25
C-6	Grout Covering for Fluorspar-Acid Grade	New	July	23

APPENDIX C

REPORTS ISSUED BY THE DEPARTMENT OF THE INTERIOR, JULY - DECEMBER 1957

BUREAU OF MINES

Reports of Investigations

- 5341 Caustic Leaching of Manganese Flotation Concentrate from Artillery Peak, Arizona.
- 5342 Lead-Precipitation-Flotation Tests of a California Copper-Gold Ore.
- 5343 The Miners Queen Copper Deposit, Skamania County, Washington.
- 5344 Investigation of Fluorspar Deposit, Kaiser Mine, Mineral County, Nevada.
- 5346 Electric Smelting of Cuban Serpentine and Laterite Nickel Ores.
- 5347 Manganese Dioxide Prepared from Manganous Hydroxide.
- 5348 Roof-Span Studies in Limestone.
- 5349 Low-Temperature Chlorination of Columbium-Bearing Titanium Minerals.
- 5356 Rock Breakage by Explosives.
- 5364 Vapor Pressures of Liquid Iron and Liquid Nickel.
- 5365 The Titanium-Germanium System from 0 to 30 Percent Germanium.
- 5366 Laboratory Investigation of Bauxite Ore from the Quapaw Deposit, Saline County, Arkansas.
- 5372 Determination of the Average Effective Valence State of Titanium in Sodium Chloride.

Information Circulars

- 7791 Titanium. A Materials Survey.
- 7793 Mining Methods and Costs at the Sunbright Limestone Mine, Foote Mineral Co., Sunbright, Virginia.
- 7800 Mining, Processing, and Costs--Idaho Almaden Mercury Mine, Washington County, Idaho.
- 7801 Mining Methods and Costs, Continental Uranium, Inc., Continental No. 1 Mine, San Juan County, Utah.
- 7803 Mining Methods and Costs--La Sal Mining & Development Co., La Sal Uranium Mine, San Juan County, Utah.
- 7805 Bibliography on Extractive Metallurgy of Nickel and Cobalt, January 1929--July 1955.
- 7807 Mining and Milling Methods and Costs, Ozark Ore Co., Iron Mountain Iron-Ore Mine, St. Francois County, Missouri.
- 7811 Mining Methods and Costs, Calyx Nos. 3 and 8 Uranium Mines, Temple Mountain District, Emery County, Utah.

U. S. GEOLOGICAL SURVEY

Professional Papers

- 290 Geology and mineral resources of the Congonhas district, Minas Gerais, Brazil. (Iron, manganese)
- 297-A Geology and beryl deposits of the Peerless pegmatite, Pennington County, South Dakota. (Beryl, mica)

Bulletins

- 1019-E Magnesium resources of the United States.
- 1019-G Bibliography of titanium deposits of the world.
- 1034 Mineral deposits of Central America. (Chromite, copper, lead, zinc, etc.)
- 1042-K Dismal Swamp placer deposit, Elmore County, Idaho. (Columbium)
- 1046-C Uranium-bearing minerals in placer deposits of the Red River valley, Idaho County, Idaho. (Columbium)
- 1074-A Mineralogic classification of uranium-vanadium deposits of the Colorado Plateau.

Published Mineral Investigation Maps

- MF-119 Geologic map of anorthosite areas, southern part of Laramie Range, Wyoming. (Iron, titanium, aluminum)
- MF-122 Sections of the western part of the Gateway district, Mesa County, Colorado, and Grand County, Utah. (Uranium-vanadium)
- MF-123 Mount Peale 1 SE quadrangle, Montrose County, Colorado, and San Juan County, Utah. (Uranium-vanadium)

Reports placed on open file for public inspection

- Chromite reserves of the United States
- Mercury reserves of the United States
- Geology of the Precambrian rocks of the Keystone pegmatite district, southern Black Hills, South Dakota. (Beryl and mica)

